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LEE, BENJAMIN P				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/574,455

**Applicant(s)**

NIV ET AL.

**Examiner**

BENJAMIN P. LEE

**Art Unit**

3641

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 April 2006.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-30 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-30 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO/SF/88)  
Paper No(s)/Mail Date 6/7/2006  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claim 27 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term "substantial modification" has no specific context or relativity since there is no clear distinction of what constitutes a modification or degree of modification.
2. Claim 30 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite in that it fails to point out what is included or excluded by the claim language. This claim is an omnibus type claim.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
3. Claims 1-3, 6-13, 17-23, 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allais et al. (U.S. Patent 5,056,409) in view of Quinn et al. (U.S. Patent 6,769,347) and in further view of Bouillon et al. (U.S. Patent 4,141,277).
4. In regards to claims 1, 14-16, Allais et al (henceforth referred to as Allais) disclose a land vehicle weapon system comprising:
- a base mount coupled with a land vehicle (items 2, 3, 9b and 10b of Allais figure 1 following);
  - a weapon mount (item 14);
  - a plurality of weapons coupled with said weapon mount. Note that Allais teaches a two cannon turret system (items 15 of Allais figure 4 following);
  - a weapon moving mechanism coupled between said base mount and said weapon mount, said weapon moving mechanism being operable to move said weapons to a combined configuration, between a transportation configuration and a static firing configuration (items 9, 10, 13a and 13b). Note that at least

these members combine to teach a "weapon moving mechanism" that moves the weapon from a lowered "transportation" configuration to an elevated "static firing configuration";

a plurality of moving elements coupled with at least one of said base mount, said weapon mount, said weapons, and with said weapon moving mechanism. Note that Allais teaches multiple moving elements including items 13a, 13b, 9c, 9d, 10c and 10d that are at least coupled to one of the base mount or weapon mount (see Allais figure 1 following);

Allais fails to explicitly teach a sensing mechanism coupled with at least one of said weapon mount, said weapons and said base mount or a target tracking system coupled with the weapons mount or a laser designator. However, Quinn et al (henceforth referred to as Quinn) teaches attaching sensors such a laser range finder to a remote weapons system (col. 8, lines 4-32) and video cameras and displays used for target tracking "coupled" with the weapons mount. It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to include various target tracking, monitoring or imaging devices to the weapons mount of Allais as taught by Quinn to increase the accuracy of the weapon;

and at least one user interface coupled with said weapons (see Allais figure 1 following), said weapon moving mechanism, said moving elements, and with said sensing mechanism. Note that the "user interface" of Allais is coupled with all of these elements;

Allais fails to teach that the at least one user interface enables a user to remotely operate said weapons from within the land vehicle. However, it is well known in the art to provide hardware for remote operation of roof mounted weapons systems and Quinn teaches a user interface that is remote from a weapons cradle (within the vehicle) and linked with a roof mounted weapons system to provide control of said system (col. 5, lines 41-67). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to provide a user interface that allows remote operation of the weapons system of Allais such as the configuration of the weapons system of Quinn to provide a user with a more safe operating environment (such as inside a vehicle);

wherein said weapon moving mechanism is in form of a four bar linkage (col. 3, lines 1-11) whose first link is fixed and is the same as said base mount (note that the base of Allais constitutes the "first link" especially since it is "the same as said base mount"), a second link of said four bar linkage being rotatably coupled with said first link (item 9), a third link of said four bar linkage being rotatably coupled with said second link (item 13a) and with a fourth link (item 10) of said four bar linkage, said fourth link being rotatably coupled with said first link (see rotating point at yoke item 9b);

Allais fails to explicitly teach that at least one of said second link and said fourth link being slidably coupled with said first link. However, Bouillon et al (henceforth referred to as Bouillon) teaches a connection point for links of a weapons mount where one link slides in relation to the other (col. 4, lines 16-30). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to utilize any of

various means of connecting the linkages of Allais including a sliding mechanism as taught by Bouillon to provide a more efficient storage and deployment configuration.

said weapon mount being coupled with at least one of said third link and said fourth link. Note that the weapon mount of Allais is at least coupled with the 3<sup>rd</sup> link;

said weapon moving mechanism being in said transportation configuration, when said second link, said third link, and said fourth link are substantially aligned along a substantially horizontal flat plane. Note that in figure 2 of Allais, the weapons system is in the stowed "transportation" configuration and the links are "substantially" aligned along a "substantially" horizontal plane to the degree illustrated by Applicant;

Allais fails to explicitly teach that the weapon moving mechanism being in said static firing configuration, when said four bar linkage is in a substantially triangular geometric form. However, Allais teaches each of Applicant's claimed components and it would have been obvious to configure the components of Allais to substantially form any of various geometric forms including a triangle. Bouillon teaches that linkages form substantially triangular shapes when the corresponding weapons mount is in the deployed position (see Bouillon figure 2 following). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to configure the linkages of Allais in a manner that substantially forms a triangular shape as taught by Bouillon when the weapon mount is in the static firing position, since it would have been an obvious matter of design choice to make the different portions of the weapon mount linkage of

whatever form or shape was desired or expedient. A change in form or shape is generally recognized as being within the level of ordinary skill in the art, absent any showing of unexpected results. *In re Dailey et al.*, 149 USPQ 47.

5. In regards to claim 2, Allais discloses that the weapon moving mechanism moves said weapons to a combined configuration, between a transportation configuration and a static firing configuration. Note that Allais teaches a weapons moving mechanism that allows the weapon to be moved from an elevated firing position to a lowered "transportation" position (see Allais figures 1 and 2 following).

6. In regards to claim 3, Allais discloses that the weapons are selected from the list consisting of:

canon;

mortar;

machine gun;

sub-machine gun;

coaxial machine gun;

rifle;

missile launcher;

automatic grenade launcher (col. 3, lines 22-26).



7. In regards to claim 6, Allais discloses that each of said moving elements is selected from the list consisting of:

electric actuator;

mechanical actuator;

hydraulic actuator;

and pneumatic actuator. Note that Allais teaches that the moving elements are actuated via mechanical actuators (col. 3, lines 36-42).

8. In regards to claim 7, Allais as modified by Quinn discloses that the sensing mechanism comprises at least one sensor. Note that the sensor described by Quinn inherently incorporates at least one sensor.

9. In regards to claim 8, Allais as modified by Quinn discloses that the at least one sensor is selected from the list consisting of:

laser sensor;

sonic sensor;

radar;

and mechanical sensor. Note that the laser range finder of Quinn (col. 8, lines 4-32) constitutes a "laser sensor".

10. In regards to claim 9, Allais as modified by Quinn discloses that the sensing mechanism comprises an imaging system. Note that Quinn discloses that the sensing unit may comprise a video camera (col. 8, lines 4-32).

11. In regards to claim 10, Allais as modified by Quinn discloses that the imaging system is selected from the list consisting of:

charge-coupled device;

and video camera. Note that Quinn teaches that a video camera may be included in a sighting device located with/on the weapon mount (col. 8, lines 4-32)

12. In regards to claim 11, Allais as modified by Quinn inherently discloses that the video camera operates in a visible range of wavelengths. Note that Quinn teaches viewing (by a remote user) the images of the video camera (col. 8, lines 4-32).

13. In regards to claim 12, Allais as modified by Quinn discloses that the video camera operates in a non-visible range of wavelengths (col. 3, lines 15-18). Note visible and/or infrared video.

14. In regards to claim 13, Allais discloses that the type of said at least one user interface is selected from the list consisting of:

tactile;

visual;

audio;

and haptic. Note that the "user interface" of Allais is a handle with a trigger which constitutes a "tactile" user interface (see Allais figure 1 following).

15. In regards to claim 17, Allais teaches that at least one of said moving elements rotates said base mount about a vertical axis substantially perpendicular to a longitudinal axis of said land vehicle. Note that items 2 and 3 of Allais figure 1 are taught to allow the mount to rotate about a vertical axis (col. 2, lines 23-28).

16. In regards to claim 18, Allais teaches that at least one of said moving elements changes the elevation of said weapons. Note that at least some of the "moving elements" as taught by Allais provide the capacity for changing the elevation of the weapon (see Allais figures 1 and 2 following).

17. In regards to claim 19, Allais teaches that the weapon moving mechanism changes the height of said weapons above a roof of said land vehicle. Note that the weapon moving mechanism changes the height of the weapon of Allais above a roof of a vehicle (item 1 of Allais figure 1 following).

18. In regards to claim 20, Allais inherently teaches a stabilization system coupled with at least one of said weapons, said stabilization system stabilizing the orientation of

said at least one weapon, according to the position of a target, and according to the movement of said land vehicle. Note that all the components of the weapons mount of Allais act to stabilize the orientation to at least some degree. Note that the mount is moved according to a position of a target and all the components act as a "system" to stabilize the weapon at a specific position relative to the target and in response to any movements of the vehicle. Further, note that any "mount" that acts to secure (hold) a weapon on target constitutes a stabilization system to the degree specified by Applicant.

19. In regards to claim 21, Allais inherently teaches at least one ammunition cartridge coupled with a respective one of said weapons. Note that the weapon of Allais is taught to be fired which inherently couples at least one ammunition cartridge with the weapon.

20. In regards to claims 22 and 23, Allais fails to teach at least one communication interface coupled via conductive or wireless transmission with said weapons, said moving elements, said weapon moving mechanism, said sensing mechanism, and said user interface. However, it is well known in the art to utilize a communication device with various types of transmission (conductive, wireless, fiber-optic etc.) between a user and a weapons system and Quinn teaches using radio communication between an operator and a weapons system which inherently incorporates a communication interface therein (col. 6, lines 23-36). Note that all the claimed components are taught by Allais as modified and are coupled together to form a vehicle and weapons system.

It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to utilize a communication device with an interface as taught by Quinn, that would inherently be "coupled" either structurally or wirelessly with the weapon system of Allais as modified to provide communication between a user and the weapons system.

21. In regards to claim 26, Allais teaches that the weapon moving mechanism moves said weapons between a static firing configuration (see figure 1 of Allais following) and a transportation configuration (see figure 2 of Allais following), said static firing configuration having a static firing height with respect to said base mount, said transportation configuration having a transportation height with respect to said base mount, said static firing height being greater than said transportation height, wherein the elevation in said static firing configuration is characterized by a first range of angles and the elevation in said transportation configuration is characterized by a second range of angles, and wherein said first range of angles is greater than said second range of angles. Note that the "static firing" height is greater than the "transportation" height and that the "elevation" of each of the "static firing" and the "transportation" heights incorporates various ranges of angles throughout the weapon mount's components. Note that the "range" of angles of the weapon in the elevated state is inherently greater since any elevation of the weapon above the transportation height constitutes an angle of the "first range" whereas the range of angles for the components of the weapons mount in the transportation configuration is limited to zero or whatever elevation angle the weapons makes in this configuration.

22. In regards to claims 27 and 28, Allais teaches that the base mount is coupled to an outer surface of said land vehicle, without substantial modification to said outer surface and without physically penetrating said land vehicle (outer surface or hull). Note that "substantial modification" has no real context if the mount is constructed with or as part of the vehicle. Note that the mount of Allais does not appear to penetrate an outer surface or hull of the vehicle nor require any "substantial modification" to said surface.

23. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allais et al. (U.S. Patent 5,056,409) and Quinn et al. (U.S. Patent 6,769,347) and Bouillon et al. (U.S. Patent 4,141,277) as applied to claim 1 above, and further in view of Horn et al. (U.S. Patent 4,336,743).

24. In regards to claims 4 and 5, Allais as modified fails to disclose a chemical compound dispenser that dispenses smoke or gas or foam or liquid coupled with said weapon mount. However, Horn et al (henceforth referred to as Horn) teaches mounting a chemical compound dispenser (tear gas) to a weapons mount (col. 3, lines 42-68). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to mount any of various addition weapons to the mount of Allais as modified including a chemical compound dispenser as taught by Horn to consolidate the weapons and provide for a clear field of fire.

25. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Allais et al. (U.S. Patent 5,056,409) and Quinn et al. (U.S. Patent 6,769,347) and Bouillon et al. (U.S. Patent 4,141,277) as applied to claim 1 above, and further in view of Darnall et al. (U.S. Patent 7,086,318).

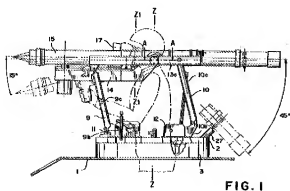
26. In regards to claim 24, Allais as modified fails to explicitly teach that the vehicle is either wheel driven, track driven or any combination thereof. However, Darnall et al (henceforth referred to as Darnall) teaches a weapons mount on a vehicle with tracks (see Darnall figure 1 following). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to utilize tracks for the disclosed vehicle of Allais as taught by Darnall to provide increased off-road capability and maneuverability.

27. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Allais et al. (U.S. Patent 5,056,409) and Quinn et al. (U.S. Patent 6,769,347) and Bouillon et al. (U.S. Patent 4,141,277) as applied to claim 1 above, and further in view of Ratliff, Jr. et al. (U.S. Patent 3,504,122).

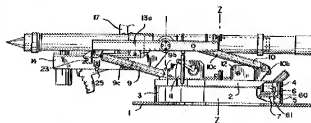
28. In regards to claim 25, Allais as modified fails to teach that the land vehicle is an unmanned land vehicle. However, Ratliff, Jr et al (henceforth referred to as Ratliff) teaches a land vehicle with a weapons mount that is unmanned and remotely operated (see Ratliff figure 5 following). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to provide an unmanned capability to any of

various vehicles including the vehicle of Allais as taught by Ratliff to eliminate any risk for human operators.

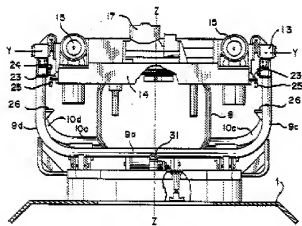
29. In regards to claim 29, Allais as modified by the above references teaches a land vehicle weapon system according to any of claims 1-28 substantially as described hereinabove.



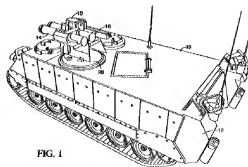
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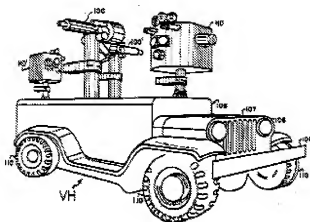


FIG. 5

Rafliiff

### ***Summary/Conclusion***

30. Claims 1-30 are rejected.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Benjamin P. Lee whose telephone number is 571-272-8968. The examiner can normally be reached between the hours of 8:30am and 5:00pm on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Carone can be reached on 571-272-6873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/B. P. L./

Examiner, Art Unit 3641

/Bret Hayes/

Primary Examiner, Art Unit 3641